GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, MAY 9, 1888.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The Use and Abuse of Public Pleasure Grounds.—Why We Do Not Buy Growing Plants.—To the Owners of Woodlands.—Leasing the State Forest Lands 121

How the Bald Cypress Converts Lakes into Forests.....*A. H. Curtiss.* 123

April in the Pine Barrens.....*Mrs. Mary Treat.* 124

The Meadows in Central Park (with illustration)..... 124

FOREIGN CORRESPONDENCE:—London Letter.....*William Goldring.* 124

NEW OR LITTLE KNOWN PLANTS:—Brodiæa Bridgesii (with illustration), *Sereno Watson.* 125

CULTURAL DEPARTMENT:—Calceolarias.....*William Falconer.* 126

The Rock-Garden in Spring..... 127

Fruits for Market and for Home Use.....*E. Williams.* 127

Globe Artichokes—Rhododendron Countess of Haddington..... 127

PLANT NOTES:—The Wild Fig Tree of Florida (with illustration)..... 128

Notes from the Arnold Arboretum..... 129

THE FOREST:—The Forests of the Yellowstone National Park....*Frank Tweedy.* 129

CORRESPONDENCE..... 130

RECENT PUBLICATIONS..... 131

RETAIL FLOWER MARKETS:—New York, Philadelphia, Boston..... 132

ILLUSTRATIONS:—The Meadows in Central Park..... 125

Brodiæa Bridgesii, fig. 24..... 126

The Wild Fig Tree of Florida..... 128

The Use and Abuse of Public Pleasure Grounds.

THE daily papers of this city have recently mentioned the fact that a speculator has applied to the Park Board for permission to erect in the parks "kiosks" to contain machines "that will weigh visitors for one cent and drinking water machines that when a cent is dropped in them will deliver a glass of ice water to the thirsty." It is hardly needful to inquire whether the Board intends to give ear to this enterprising person—we think we can count with assurance upon the fact that it will make short work with his proposal. But the mere fact that such proposals can still be made in any hopeful spirit, that there are still individuals who think they can exploit our public pleasure grounds in the interests of their own pockets, calls for a word of condemnation. Of course all proposals of this sort are made solely in the hope of personal profit. It would be ridiculous to suppose that they were intended to meet any genuine public need. The public, indeed, has a right to ask that it shall be able to drink when thirsty; but if there is any park or portion of a park where this demand is not already met, it should be met by the erection of drinking fountains of proper architectural character, and no fee, however small, should be charged for their use. And although many idlers would doubtless drop their pennies in a weighing machine should they come across it in some corner of a park, the impulse which would prompt thereto is certainly not one which has a right to respectful consideration. Even if there were no other reason to object to the erection of unnecessary structures, however small, in our parks, reason enough would be found in the obligation to impress upon the less thoughtful part of the public for what purposes parks are created and in what spirit they should be enjoyed. They are not places of amusement in the sense that they should contain facilities for exciting curiosity, for spending money, or for idling away an hour in the pursuit of such gratifications as a country fair ground affords. They are places in which to seek fresh air and sunshine, healthful exercise or needed rest, and that refreshment of mind and body and that gratification of the sense for beauty which the contemplation of Nature affords. They are, indeed, places for recreation, but in the primitive sense of the word, not in the sense which is most commonly accepted to-day—places for the re-creation of the physical and the spiritual man. It is important that this lesson should be impressed upon the people, and there is no way of impressing it so potent as rigorously to exclude from our parks all features which tend to lead their thoughts and wishes in a wrong direction. When a park is large enough, places should, of course, be set apart for the sports and healthful out-door amusements of children and young people; buildings should be supplied in which food and drink may be had; temporary shelters should be erected in inconspicuous spots; and musical performances may very well be given from time to time—they draw the people into the park, gratify an intellectual craving, and assist the happy influence of Nature herself. But more should not be done in these directions than can be done without injuring the character of a large park as a scene of natural beauty and a place especially devoted to the enjoyment of this beauty; and nothing whatever should be done in the way of gratifying the instincts of those lounging adults who seek in a park the same sort of gratification that they seek in the street or the fair-ground. To erect in the Central Park weighing machines of any kind or drinking fountains which work by a trick, would be to run as distinctly counter to the true purposes for which it was created as to build the road for fast driving, of which there has recently been so much said. The actual injury done would, of course, not be a thousandth part as great, but the spirit in which it was done would be essentially the same. And what is true of the Central Park is just as true of all parks, no matter how small they may be or what may be the character of the population which chiefly frequents them. A weighing machine ought no more to be allowed in Tompkins Square than in the centre of the Mall.

But if the exclusion of these and all other possible devices for filling the pockets of speculators and diverting the attention of the public from the beauties of Nature, is to be recommended for the sake of the growth of the public in intelligence and appreciative power, it is just as strongly to be recommended for the sake of the beauty of our parks intrinsically considered. So many things are absolutely needed in them which disturb their repose and injure their beauty, and it is so hard to obtain these in as inoffensive a form, even, as they might be made to wear, that it is exasperating indeed to think of the possibility of their number being increased by wholly useless, worthless, profitless additions. It is hard to get even a needed drinking fountain, seat or shelter so constructed and so placed that it shall not appear a blot upon the scene. How, then, shall any one dare propose to put the hideous cast iron "kiosks" of the private speculator in a public pleasure ground, where, if allowed at all, they certainly would be put in the most conspicuous places possible—in the places where they would do the greatest possible amount of injury alike to the mood and spirit of the public and to the beauty of the park itself?

Why We Do Not Buy Growing Plants.

WE spoke recently of the difference between American dwellers in cities and those of European lands in the matter of using growing plants for the adornment of the home. As was then said, we cannot help regretting, not that so much is spent here for cut flowers, but that so little is spent for more lasting forms of beauty. There is more than one fact to be noted, however, in explanation of our seeming indifference to growing plants.

We do not mean the fact that such plants are not so freely and attractively offered for sale in our cities as they are abroad; if there were to be a demand for them a supply would no doubt be forthcoming. We mean, in the first place, the difference in certain customs of domestic life

which exist between ourselves and the French and Germans. In France and Germany women of the middle class go daily to the markets themselves, and women of the upper class send their cooks or housemaids; and neither the mistress nor the *bonne* is ashamed to be seen carrying home her big market-basket and her white-papered plant. But with us the master of the house does the marketing on his way to business; or orders are given in writing; or, if the mistress makes marketing a part of her daily shopping-task, she is neither in the dress nor the mood to carry home even the smallest flower-pot. Moreover, while abroad the *commissionaire* stands waiting on every street-corner to take home for a few cents anything one wants to send, such transportation is much more difficult to get in American cities, and is much more expensive even if it can be obtained. Undoubtedly it is largely for these reasons that, while cut flowers are bought in such quantities on our streets by persons of moderate means, growing plants are seldom purchased by them.

But, it may be said, plants are sold abroad not only in the markets, but from house to house. In London, for example, the wagon of the flower-vender is as familiar a sight as is the wagon of the fruit-seller with us; from him flowering plants may be almost if not quite as cheaply purchased as from the market-man; and the result appears not only inside the London house, but outside. Every balcony in the long, dingy perspective of a London street is ablaze in spring and summer with Roses and Petunias, with Calceolarias and Geraniums; and the visitor thinks with dissatisfaction of the contrast presented by our own streets at the same season, when a few hotels and club-houses show laudable attempts to enliven the prospect with greenery and flowers, but when private houses are almost altogether devoid of such adornment.

Here again, however, the customs of domestic life explain the contrast, at least to some extent. The wealthy Englishman goes to town just when the wealthy American is going to the country; and he wants to make his home attractive just when the American is drawing down his blinds, boarding up his front-door, and doing his best to give the city the aspect of a plague-stricken, abandoned place. And although, naturally, the majority of people pass almost all the weeks of the year in town, whether the wealthy neighbor is at home or away, just as naturally he follows this neighbor's example. It is "the season" for all New Yorkers when it is the season for the rich to be at home; and they care most to make their homes beautiful in winter just as the middle-class Londoner cares most to make his beautiful in summer. No doubt a good deal of enthusiastic amateur gardening goes on for private gratification in the American city back-yard in summer; but to adorn the front of his home from public-spirited motives would seem to an American a futile act when there was no one in town to be gratified by it. This feeling, we allow, is natural. But, like many natural feelings, it is mistaken and unfortunate. The time when "nobody" is in town is just the time when the multitudinous individuals who are in town are in the mood to enjoy every bit of greenness, every hint and suggestion of natural beauty, which may present itself. Such individuals should then be especially bent upon doing their best to gratify each other. And the richer folk who are out of town, living in their own gardens and among great Nature's greater gardens by the seashore or upon the hills—it is surely the time when these should think a little of what they can do for human beings less favored than themselves. Few city homes are left without a care-taker in summer, and few are unvisited from time to time by the master himself. It would cost very little to fill the lower window-sills of such houses with boxes of vines and flowering plants, and it would take very little trouble to keep them fresh and brilliant all summer. And if every absent householder spent this little, how great would be the increase of pleasure for the multitudes of weary spirits to whom a week's outing must represent a summer vacation! The little money spent in this way would be but a small mite spent on true charity as set against the great sums which the giver annually expends upon his own and his family's pleasure. And if any one doubts whether a really beautiful result can be accomplished with window-boxes filled with simple hardy plants, there are fortunately one or two New York houses to which he may look to convict him of error. Let him look, for instance, this coming summer, at the great house on the south-west corner of Madison Avenue and Thirty-eighth Street—closed and barred like its neighbors, but beautiful, and we may truly say, charitable, with wreathing vines and flowers—and, if it is what it has been in former seasons, he will be willing to make a considerable detour in his walks down-town for the delight of daily passing it.

To the Owners of Woodlands.

THE Pennsylvania Forestry Association is doing good and valuable work in teaching the people of that State to take care of their forests. *Forest Leaves*, the organ of the Association, is full of information about forests, trees and tree-culture, and with more frequent and regular publication would be a model of its kind.

The clear and forcible recommendations which this Association makes in one of its recent circulars are applicable to every owner of a forest or of a piece of woodland; and we are glad of the opportunity to reproduce them for the benefit of our readers. The Association "wants every farmer, every owner of woodland, to know—

"That his wood-lot contains a valuable crop, which it will pay him, not only to cut down and slaughter, but to manage and utilize judiciously;

"That it is possible to utilize the old trees in such a manner that a new, valuable crop is produced instead of the inferior crop, which now so often takes the place of the virgin forest after indiscriminate cutting;

"That as an intelligent manager and husbandman, he would do better to see to a natural reproduction of his wood-lot, to cut with regard to the spontaneous young growth, rather than to clear indiscriminately;

"That the time has come when forest destruction must give way to forest management; for timber is becoming more valuable every year, as it grows scarcer in the country at large;

"That in the woodlands in proper proportion lie, to a large extent, the conditions of a favorable climate and successful agriculture;

"That upon forest growth depend healthfulness and equableness of climate;

"That the forest breaks the force and tempers the fury of the northern, and cools and moistens the breath of the southern wind;

"That by its own cooler and moister atmosphere in summer and warmer atmosphere in winter, it tends to equalize temperature and humidity over the intervening fields;

"That while the open, treeless, heated prairie prevents the fall of rain, allowing moisture-laden clouds to pass over it undrained, we must thank our forest-clad hills and mountains for our more frequent, more gentle, more useful showers; and, above all,

"That the forest cover of the mountains preserves the even water flow in our springs, brooks and rivers, while its destruction, or even deterioration, increases the danger of floods, washes off the fertile soil, and then brings down unfertile soil into fertile valleys, lowers the water level, and, in general, throws out of balance the favorable conditions for agriculture;

"That while we advocate the cutting and using of the wood crop as we need it, we must not any longer, as we have done, squander and waste it; we must not clear where clearing produces danger to the surrounding country."

Leasing State Forest Lands.

THE bill empowering two of the Adirondack Commissioners to lease five-acre tracts of the State forest lands for terms of five years has been amended in the Senate to make the consent of the entire Board necessary for the confirmation of any lease. This is better, or rather it is less objectionable than the original bill; but if it is dangerous for the State to grant these unusual powers to two men, it certainly is neither safe nor wise to grant them to three men. No private individual has any claims upon the lands set apart by special enactment for public use. A refusal to give one the use of five acres for five years, or of a hundred acres for a hundred years, does not conflict with any of his rights as a citizen. A lease of any amount of this State Forest for any length of time to any person for his private use, is clearly a special privilege. If such privilege is granted to one man, another can claim it with equal force. The law will be an advertisement to every one to come and take possession of the spot that suits his particular fancy, until the people of the State will be warned off as trespassers from the most attractive portions of their own land. If the price is made low it will all be "located" in a few months. If a high price is demanded, just complaint will be made that the rich are favored as against their less prosperous neighbors.

The bill is vicious in its essence and its evils are not mitigated by any check or restraint upon what are its most dangerous tendencies. No restrictions against improper exercise of this power are provided, but the commissioners are invested with absolute powers in conveying away the State's right in its own lands. These officials are enabled, under this act, to lease and renew leases of tracts situated anywhere, to whomsoever they may elect, and upon whatever conditions they may prescribe. They are not required even to make the terms of such leases public. In short, they are released from all the restraints that experience has proved necessary for the safe administration of public trusts, so that the dangerous principle of permitting the alienation from the State of its control over its own lands is made still more dangerous in practice, by a neglect to prescribe the limitations and to set up the safeguards which ordinary prudence dictates in all cases where unusual powers are delegated to an agent.

One of the Commissioners has lately declared that he does not favor the principle of leasing, but that he wishes the right to grant leases to the two hundred persons who already have actual possession of portions of the State Forest in the North Woods and elsewhere. That is, he asks for the law to relieve himself of the trouble of deciding the question forced upon him by the presence of these squatters. The Commissioners shrink from the task of ejecting these worthy people, and they ask to be allowed therefore to confirm them in the possession of the land they have occupied because it suited them. But if they shrink from dealing with the hundreds now occupying the State Forest, they surely will be unable to stand before the thousands who will be demanding the same privilege under the new law. It is argued that the scheme can be tried a few years and if it proves unsatisfactory it can then be repealed. But if a Commission feels inadequate to treat with a few men who have possessed themselves of State land without authority, how can it hope to meet with proper spirit an army of lessees who hold the lands on a tenure legally granted by the Commission itself? Clearly such a law would add to the embarrassment of the Commission, not to speak of the increased labor it would entail and the temptations it would offer. It is a bad measure from every point of view and it should never become a law.

How the Bald Cypress Converts Lakes into Forests.

THE natural processes by which the earth we inhabit is torn down or built up are extremely interesting subjects of study. The comparative facilities for natural drainage determine more surely than any other agency what the future condition of any territory will be. In hilly and mountainous countries the depressions would gain by surface wash what the elevations lose, but for the innumerable water courses that are continually carrying that wash to the sea. Where, however, the surface is nearly level and the water courses have but slight fall, the depressions receive nearly the entire wash occasioned by rainfall and the principal accession from the growth and decay of vegetation.

Of countries that are growing through the last named agencies no better example could be found than is furnished by the Florida peninsula. Its surface, with slight exceptions, is either level or gently undulating. The waters of Florida are clear, containing no earthy matter, and they have so slight a fall that the ocean tides affect them in places a hundred miles inland. A large portion of the rainfall, probably more than half, never reaches the running streams, but escapes by evaporation, or by percolation, to underground channels. In rainy seasons much of the country is overflowed, and in dry seasons the lakes become very shallow and the ponds dry.

A country in which there are such alternating conditions, is eminently suited to the growth of rank and diversified vegetation, both herbaceous and arborescent. In the hummocks and in the low pine woods, which are seldom visited by fire, the growth of vegetation continues almost the year round. Where such growth has progressed unchecked on uplands, the best lands for immediate cultivation are found, while the lowlands are still more valuable, if they can be drained. In the ponds a deposit of muck is being formed, which, when sufficiently elevated, will feed a different class of plants from those that have contributed to its formation.

When we come to study this leveling process that is going on in the lowland of the South, and in Florida in particular, we are led to the conclusion that no agency has so much to do with it as the peculiar habit of growth of the Bald Cypress (*Taxodium distichum*). This tree is peculiarly adapted to the unstable soil found in ponds and alluvial river bottoms. It has a massive base, few and short branches and scanty foliage. Thus the centre of gravity is near the ground, and this, with the peculiar root growth, renders the uprooting of the tree by wind practically impossible.

The Cypress has a very broad base, which tapers rapidly into the main trunk. This is a characteristic of other trees found in like situations, notably the Tupelo (*Nyssa uniflora*), the Swamp Gum (*Nyssa aquatica*), the Swamp Ash (*Fraxinus platycarpa*), and the Swamp Privet (*Forestiera acuminata*). The Cypress is provided with additional means of maintaining its equilibrium. Where the situation favors a large growth (the Cypress sometimes measures ten feet in diameter as many feet from the ground), thin buttresses spread out from the base in all directions. This feature lends to a great Cypress swamp an almost labyrinthine appearance, especially in dry seasons, when the bases of the trees are left bare. The Cypress has also a system of strong surface roots, by the interlocking of which neighboring trees give each other support.

The surface roots of the Cypress have the peculiar habit of giving out excrescences, which rise several feet from the surface, in the form of domes, turrets and arches, or in wrapping other objects with a vine-like growth. These excrescences—commonly called knees—are hollow and of spongy texture, and their growth hastens the time when the localities they now occupy will become too elevated to suit such forms of vegetation.

In the shallow lakes and ponds that abound in the low Pine woods of the South the Cypress does most effectual work as a land builder. Germinating on a miry margin or shoal spot, in a season of low water, the young tree becomes established, sends out its raft of roots to support its spindling top, and as it grows pushes upward knees, which serve to detain floating substances and to give support to such objects as are in condition for growth. In a dry

season—which may last for a year or more—a rank growth of sub-aquatic plants springs up. This dies down in the fall and the leaves and dead twigs of the Cypress are added to the matted herbage, which each spring offers better support for a succeeding growth.

This process of vegetation progressing around a shallow lake finally converts it into a winter or dry-weather pond. During heavy falls of rain soil is washed in from the surrounding slopes. As fast as spots become unfitted for water-loving plants other species take their place. If surrounded by Pine woods seeds of lowland Pines begin to spring up nearer and nearer the centre of the pond, and the long leaved Pines make a heavy deposit on the surface each year. If near a hummock, the Bays, Magnolias, Oaks, etc., may take possession. Thus by continual wearing down and building up, through such natural agencies, there is a constant approach to uniformity of surface. A marked change must take place during a century; a still greater change during a thousand years. This process is continually going on, and the Bald Cypress has played an important part in fitting the low country of the South for man's use. *A. H. Curtiss.*

April in the Pine Barrens.

THE low Pine-barrens of southern New Jersey are always interesting, and even at this early season there is an awakened activity in plant life that can hardly be appreciated by those dwelling a few miles to the north. By way of compensation for its lack of bold, picturesque scenery, Nature has clothed these wild levels with a charm distinctively their own, and a journey of two or three miles from home will bring me to chosen spots where such a wealth of floral treasures awaits me as can scarcely be found in any other locality of the United States.

Among our earliest treasures is the little trailing evergreen, *Pyxidanthera barbulata*, which often begins to open its white and rose colored flowers as early as March, while the Trailing Arbutus blooms here a month earlier than in New England. These two lovely plants frequently run together, so that it is difficult to separate them.

The Partridge-berry and the aromatic Wintergreen, with their bright red berries and evergreen leaves, also help to cover the ground and make charming masses that we covet for our gardens. But I have never succeeded in making them feel at home and happy under cultivation—which, after all, should be a matter of small regret, for they never would appear as well with civilized surroundings as they do in these lowly and lonely places.

The small shrub *Cassandra calyculata* we find in bloom near the Pyxie and the Arbutus. And a few steps beyond in the Cedar swamp, the stately *Helonias bullata* is throwing up its spikes of purplish flowers by the side of the Golden Club, while the Wind-flower is clustered thickly around an old decaying stump. What a rare gardener has been at work here! The stump itself is decorated all over with scarlet-cupped Lichens, while its decayed heart nourishes a thrifty clump of Blueberry, with pink buds just ready to burst into leaf, while beneath my feet is the lance-leaved White Violet with a delicate perfume not bestowed on our other species.

The aroma of these low woodlands in spring is delicious. The fragrance of the swaying Pines overhead, intermingled with the spicy breath of the Wax Myrtle and Sweet Fern, already waving its plumy catkins, together with odors of Sassafras and the more subtle fragrance of other shrubs, all combine to make a perfume that can only be produced in Nature's laboratory.

The deciduous trees are still leafless, and comparatively few of our plants are in bloom, yet there is an atmosphere of delicate color all about—on every twig and swelling bud, and on the lowly growth that carpets the earth. The Barrens will be almost vivid with bright flowers by and by, but the place will hardly be more attractive than at this spring opening with its freshness, its modest beauty and its promise.

Vineland, April 20th. *Mary Treat.*

The Meadows in Central Park.

SCENERY of a purely pastoral character is no doubt the most valuable element of a park within the limits of a great city like New York, for no stronger contrast to the constrained and artificial conditions of urban life can be imagined than meadow-like stretches of greensward which are not fenced in by rigid boundaries, but fade away in obscure and shadowy distance. Broad, open landscapes, with spacious skies, and the sense of enlargement and freedom which they bring, offer the most pleasing of contrasts to the hard confinement of city streets with their skyline of roofs and chimneys; the tranquillizing influence of soft, smooth, grassy surfaces is an unfailing refreshment from the wear and weariness, the strain and pressure of city life, with its strenuous effort and consuming ambition. The designers of Central Park plainly endeavored to embody, as much as possible within their limitations, and in a dignified way, without resorting to affectations or deceptions, the quiet, pastoral idea. Within the narrow area of the park the broadest scope of open meadow that could be secured was considerably less than thirty acres. But the bordering woods were so disposed as to leave the boundaries uncertain and mysterious, and the turf was made to flow into sunny alcoves and about promontories of foliage, until it was lost in hazy shadows which suggested indefinite extent of the same restful scenery. The view on page 125 is taken from a point overlooking the west meadow. The glimpse of distant turf seen under the branches of the group of trees in the centre, the opening in the wood border on the left, the skyline of trees in the distance, all suggest to the imagination a limitless extent of similar rural conditions. No object meets the eye of the observer to indicate that there is anything beyond but green pastures and tree-flecked meadows. It may be added incidentally that the illustration shows an example of exceptionally good grouping and thinning after the manner recommended by Mr. Olmsted in another column of this paper.

Foreign Correspondence.

London Letter.

LAST Tuesday the Royal Horticultural Society held its first meeting in its new quarters, and the occasion was interesting beyond expectation. The exhibition building is a stately structure, and the hall, which is of ample size, was crowded with a wonderful display. Apart from the Dutch bulbs, which by this time have become rather monotonous, noteworthy exhibits were the groups of Cyclamens, each plant carrying from sixty to eighty flowers; masses of the neat little Polyantha Roses, mentioned in a former letter; some remarkable new Tea Roses of Mr. Bennett's raising, particularly the variety called Princess of Wales, white suffused with yellow, and Lady Mary Fitzwilliam, a delicate pink. Of the numerous Orchids a plant of the famous white *Cælogyne cristata* was conspicuous for size and beauty. It measured two feet across and bore numerous long clusters of spotless flowers. This is still one of the rare and choice Orchids, and no doubt this individual plant would bring at auction from 100 to 150 guineas any day.

Among the new plants, certificates were awarded to the following:

Spathoglottis Kimballiana, named in compliment to one of your Orchid amateurs, was unquestionably the most important plant exhibited, being so very beautiful and so very distinct from all known Orchids. Its flowers may be compared with those of *Phalænopsis grandiflora* in size and form, but are of a pure canary yellow; in fact, some thought it was a yellow Phalænopsis. The flower is three inches in diameter, with broad sepals and petals, and its lip is adorned with a heavy blotch of rich reddish brown. The bulb is egg-shaped, and from this

proceeds the plaited or furrowed leaves about two feet long. The flower stems are from two feet to three feet high, surmounted by dense clusters of flowers, which expand in succession, two or three being open at one time. It was imported by Sander & Co., St. Albans, last year, and the description given at the sale of its rare beauty is more than confirmed by this plant, which is the first that has been seen.

Phalænopsis John Seden, a new hybrid between *P. grandiflora* and *P. Luddemanniana*, was shown for the first time by its raisers, Messrs. Veitch & Sons. This, too, is a beauty, its flowers being different from those of any other Phalænopsis. They are as large as those of *P. grandiflora;* the petals and sepals being pure white, copiously spotted and freckled with rosy purple, with violet and yellow on the lip. The vigorous growth of Luddemann's species is transmitted to the progeny, which is fortunate. It is as pretty as the other new hybrid, F. L. Ames, and certainly is more remarkable, and if it possesses the free flowering character of Luddemanniana, it will make a valuable plant.

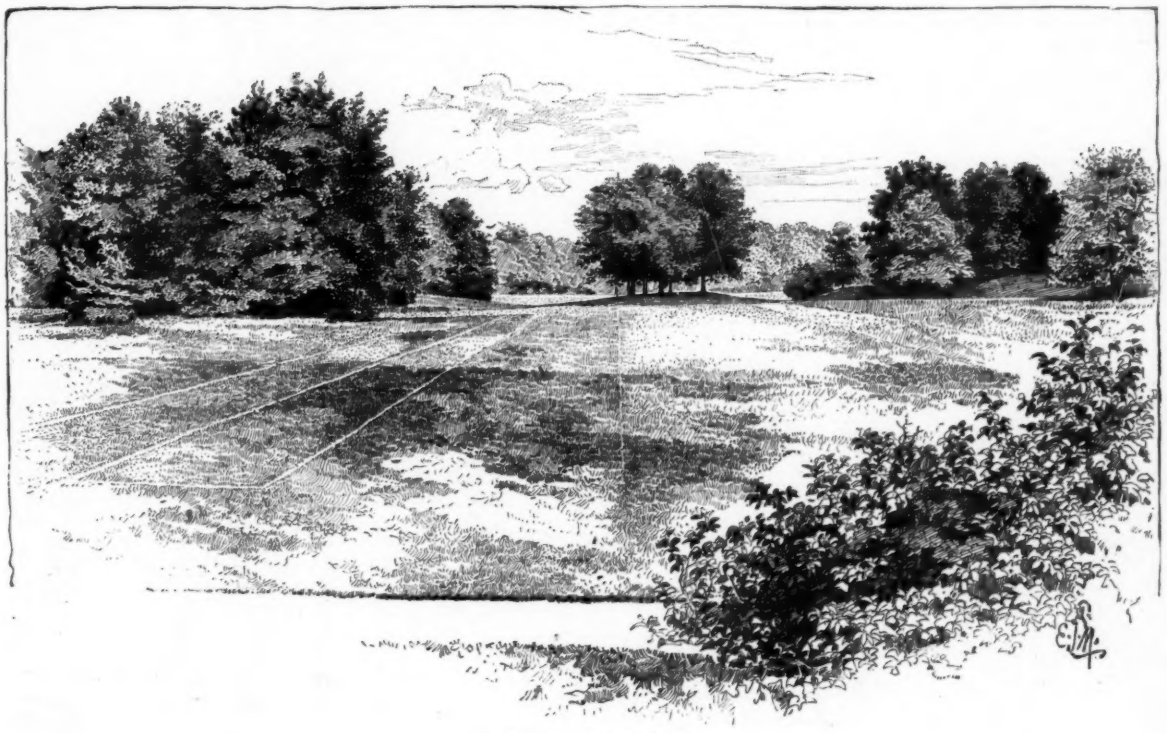
Dendrobium crassinode superbum won the unanimous approbation of the committee on account of the large size and glowing color of the flowers which thickly wreathed every stem. At first sight one would think it identical with Barber's variety, but the flowers are decidedly larger, and the bright rose-purple color, instead of being confined to the tips of the sepals and petals, runs half way down, and is in beautiful contrast with the whiteness of the other parts and the golden-blotched labellum. This makes the third variety of *D. crassinode* that has been named, the others being Barberianum and album, the latter having white petals.

Gloire de Polyantha Rose.—The charming little Polyantha Roses are now becoming better known and more popular, and this new sort, raised by Guillot of Lyons, and shown by Paul of Cheshunt, is, perhaps, the best yet produced. Until this sort came out one called Mignonette was the best pink variety of this class, but the present novelty eclipses it far and away in color, being several shades darker and brighter, and the flowers are produced in larger clusters. The Polyantha Roses have been neglected, but they will fast rise in favor now that varieties are produced with rich delicate colors.

The White Lilac, Marie Lemoine, is one of the best varieties of *Syringa vulgaris* I know. The flowers shown were, of course, forced, the clusters were very large and dense, and the flowers of unusual size and snow white. It was certificated chiefly on account of its great value for forcing into early bloom, but, no doubt, it would be equally fine in the open shrubbery. The best White Lilacs we have besides this are grandiflora alba and Marie Legraye, but I think Marie Lemoine is finer than these even.

William Goldring.

London, March 31st.



The Meadows in Central Park.

New or Little Known Plants.

Brodiæa Bridgesii.*

THIS is a characteristic representative of a large group of umbelliferous liliaceous plants peculiar to western North and South America, and especially abundant in California. They differ from *Allium*, a genus which is found in all northern temperate regions, and is also very abundant in the western United States, in the absence of alliaceous odor, in springing from a solid corm instead of a coated bulb, in the less spathaceous character of the bracts which subtend the umbel, and in the character of the ovary. The flowers vary greatly in color and form, being often quite handsome, and are usually jointed upon the pedicels. The most prominent genus of this group is *Brodiæa*, which includes some 20 or 25 Californian species and a number of very little known South American ones.

*B. Bridgesii, Watson, Proc. Am. Acad. xiv. 237. Scape a foot high or more, from a small bulb; pedicels 10 to 20, elongated; perianth blue, 12 to 15 lines long, funnelform, the narrow tube exceeding the lobes; stamens 6, in one row on the throat, the short and nearly equal filaments dilated downward; anthers linear; capsule ovate, much shorter than the stipe.

These are variously divided into 3 or 4 sections, to which twice as many generic names have been given by different authorities, based mainly upon the form of the flower and upon differences in the stamens, three of which are sometimes reduced to broad scales, while the filaments are often winged.

The present species belongs to the section *Tritileia* or *Seubertia*, characterized by having six stamens with naked filaments and anthers suspended by the middle, and the tube of the flower narrowed downward. It is one of the most showy species of the genus, the numerous large flowers being of a bright sky-blue color. Its home is in central California among the foothills of the Sierra Nevada. Most Californian bulbs of this sort need peculiar treatment, and are apt to give poor satisfaction in eastern gardens. Some of our florists who have had experience in their culture should tell us what methods have been found to give the best results. *S. W.*

Fig. 24.—Brodiæa Bridgesii.

Cultural Department.

Calceolarias.

FROM March till May the spotted or herbaceous Calceolarias are at their best in the green-house, and they make a magnificent display. Indeed, when massed together no flowers of the season equal them in brilliancy and profusion. By continued selection in recent years larger, more perfectly formed, more brilliantly colored and distinctly spotted flowers have been produced, and the habit of the plants has become so dense and stocky that flower stems now stand erect, unsupported by any stakes.

This year we have the International strain only, and among a hundred plants now in full bloom, in one of our green-houses, there is not so much as one stick or other support of any kind among them, but they all stand bolt upright by the sturdy vigor of their own limbs.

The main points to observe in growing Calceolarias are these: Do not sow the seed before the middle of June; throughout their early life keep them as cool as possible; shade from sunshine during their whole existence, but at the same time give them as much light as possible; don't allow them to get frozen; never let them get dry at the root; don't crowd them; keep them rigidly free from aphides, and when they are in bloom do not allow water in any way, even as "dew" from an over-moist atmosphere, to touch the flowers.

Sow the seed about the 21st of June, in a seed-pan filled two-thirds deep with drainage and then to the top with fine sandy soil. Put the seed-pan in a north-facing cold-frame, with sashes on to ward off rain, and ventilate to keep it cool, and shaded to prevent the earth in the pans getting dry too quickly. The seed, although very small, has great vitality, and generally most of it germinates in a fortnight. We soon prick off the seedlings into other pans, thence into two-and-one-half-inch pots, and afterwards repot them as their size and vigor demand, till they are in six or seven-inch pots, the sizes in which they bloom.

For soil use rich, porous, turfy loam rubbed (not sifted) fine, and some dry, old manure, also some leaf soil and sharp sand, and in all cases have the pots well drained. And although the soil should be moderately firm, particularly avoid such solid potting as would be necessary for Roses or Carnations.

Throughout their whole existence Calceolarias must be copiously supplied with water at the root; and after they are in their flowering pots and well-rooted, weak manure water may be given them frequently. But as their foliage is so succulent and closely bunched together, carefully avoid wetting the leaves, else they are apt to rot off at the neck.

We keep the plants outside in the cold-frame till November, when they are brought indoors to a cool green-house and set on stages quite near the glass. While a slight frost will not hurt them, it is better not to run the risk of any freezing whatever. Throughout the winter we keep the green-house as cool as is possible with safety, never letting it fall under 35° nor rise above 50°. In favorable weather we ventilate freely and at the same time use a little fire heat to dispel damp.

If sown early and grown along vigorously Calceolarias may be had in bloom in January, and if sown in September their flowering period can be retarded till June, but after the warm weather of summer sets in it is a difficult matter to keep them in good condition. They are at their best in April.

They are more liable to be attacked by the green fly than are any other plants in cultivation, and in order to protect them from aphides we must use tobacco vapor and smoke unsparingly, and not so much as a cure as a preventive. While the young plants are in the cold-frames, tobacco stems should be placed under and among the pots; and in the green-house tobacco stems should always be laid on the hot-water pipes under the benches. The constant vapor from these wetted stems, and thorough smoking at intervals, are the best defense against insect attacks.

Calceolaria flowers do not last long after being cut, but for a

day or two they are very good; and as they are very easily injured by crushing they must be packed and carried carefully. But the plants in bloom can be used with admirable effect in room decorations.

Glen Cove. *William Falconer.*

The Rock-Garden in Spring.

Iris Korolkowi, a comparatively recent introduction from Turkestan, is one of the earliest plants in flower in a New England rock-garden. It is a dwarf, bulbous and very hardy species a span high with narrow leaves and rich purple flowers, brightly marked on the falls with large, clear yellow blotches. With it, and a little earlier, bloom *Iris reticulata* and its variety *Krelargii*, charming little Caucasian plants, also with purple yellow blotched flowers. These appear with the Crocuses and Siberian Squills in the middle of April, and nearly a fortnight later than the earliest Snowdrops. Single Hepaticas have passed when these Irises are in bloom, but some of the double flowered varieties are later and last a long time in flower. Some of these have very dark blue, and others pink or clear white flowers. Few of the earlier flowering rock-plants are more beautiful. The Spring Snowflake (*Leucoium vernum*) is one of the great attractions in the rock-garden at this time. It is a dwarf species from central Europe, hardly more than six inches high, with large, drooping, bell-shaped, fragrant flowers, an inch and a half across, when expanded, and marked with a conspicuous spot of green and yellow at the tip of each segment. This is one of the most charming of all the plants of its class. Not less attractive and equally hardy is *Chionodoxa Luciliæ*—one of the handsomest and most interesting of recent additions to the perfectly hardy spring flowering bulbs. *Chionodoxa* is formed from two Greek words meaning snow and glory, and refers to the fact that this plant flowers amid the melting snows of its mountain home. It is a native of Asia Minor and Crete, and was discovered by the Swiss botanist Boissier on the western Tmolus, above Bozdath, at an elevation of 7,000 over the sea level. The leaves are three to six inches long at the flowering period, strap shaped and surmounted by a slender raceme of three to six or sometimes even twenty intensely blue flowers shading to white in the centre. These are fully an inch across when expanded. *Chionodoxa Luciliæ* can be as easily grown and as readily increased as a Siberian Squill or any other spring flowering bulb. A few days later *Adonis vernalis*, one of the best and hardiest of dwarf plants, opens its splendid yellow flowers, and these in turn are followed by many others, which make the rockery the most interesting spot in a garden in April and early May. These plants are all perfectly hardy, they flourish and increase and improve year after year among the rocks or in any garden border, and year after year the unfolding of their flowers is a new surprise and a new delight which old acquaintance never dulls. *C.*

Fruits for Market and for Home Use.

A CORRESPONDENT, after alluding to some notes of mine on fruits for home use, inquires if such fruits are not good enough for the market? This is a novel way of putting the question, and the reply might be that they are often too good. We raise home fruits to eat and market fruits to sell. Very plainly the latter must reach the market in salable condition, and they must help by their appearance to sell themselves. For home use, flavor is the highest consideration. For market, it is less important than appearance, and to have a good appearance in the market a fruit must be firm enough to endure carrying. Again, a market fruit must be productive if the grower is to make a living. From this it may be seen that while a man who makes a business of fruit-growing sends to the market every day what he would never think of putting on his own table, it does not follow that he is dishonest or wicked. He is simply driven to this by the necessities of his calling and the demands of his customers.

The Cumberland Strawberry has size, beauty, earliness and quality, all valuable features in a market berry, but no one would think of growing it for that purpose, simply because it is too tender to stand transportation. The Manchester, Downing, May King, Jewell and many others are only fitted for near markets, for the reason that they ripen soon after coloring. The Sharpless, Atlantic and Davis are good market varieties, not only on account of their size, beauty, etc., but for their firmness and ability to stand long-distance carriage. Other varieties, like the Wilson, Crescent and Jersey Queen, color in advance of maturity, and are ripe in appearance while they are yet solid. They bear transportation for long distances, and ripen on the way to market. It is this quality that has given the Wilson such a reputation, but no one would think of growing it for family use, except those who consider one Strawberry as good as another when smothered in sugar.

The Caroline, Orange, Clarke and such tender-fleshed Raspberries are utterly unfit for market on account of their delicacy. Such fruits will only bear transportation from the garden to the table. It is only the firmer sorts of red Raspberries that will answer at all as market varieties, and a wet spell at the ripening season plays havoc with the best of these. Firmness is the redeeming quality of the Black Caps. This fits them for long carriage, and being good keepers, they are admirable for market purposes.

To illustrate the value of appearance one only need place a Dana's Hovey or Seckel Pear on sale beside a Clairgeau or Kieffer. Ninety-nine buyers would select the big, handsome fruit before the knowing hundredth man would taste the luscious little ones. And so the whole list might be canvassed. In Grapes, for example, the early and good-looking Champion always brings good prices, but it is only fit to sell.

On the other hand, it must be admitted that market-growers do wrong in sending certain varieties of Grapes as soon as they color, but long before they are really ripe. The Ives is one of the kinds that wears a color of ripeness long before it is fit to eat. The objection to the Grape is not that it is of poor quality. It is really a good Grape when ripe, but growers take advantage of its appearance to palm off an unripe, and therefore unwholesome, fruit upon the unsuspecting buyer. Here is a plain case for interference by City Boards of Health. If growers will send them, and dealers will sell them, the law should step in to protect the people from danger. Tons of these Grapes are sold in this city every year. They not only threaten the health of consumers, but they injure the business of every honest grower. *E. Williams.*

Globe Artichokes.—Although these are common vegetables in most good gardens in Europe, they are not in general cultivation here. There is a growing demand for them, however, not only for fashion's sake, but many people are very fond of them. Our first Artichokes are cut about the 20th or 25th of June; they are abundant through July and August, and in moderate supply till the middle of October. As a change or extra dish, they are desirable at all times, but more especially after mildew destroys Peas—about the middle of July—and until Lima Beans come in about the first of August. Our plantation is in rows some 6 feet by 4 feet apart. The plants are not quite hardy, and in November they are cut over close to the ground and the tops removed. After the first sharp frost a large armful of dry forest leaves is placed over each plant, a little thatch is scattered over the leaves to keep them in place. Early in April this covering is removed, and between the 20th and 30th of April all the living plants begin to grow. Plants required for the June and July crop should not be interfered with; but if a few old plants are lifted, and each cut into two or more parts with a sharp spade, and these divisions are planted separately, they will yield fine heads in August and September. It is also well to break up and replant the Artichokes every second year, as it keeps them in vigorous condition. We also raise a few plants from seed every year. Sown in the green-house in February or March, and grown on vigorously in hot-beds till the middle of May, and then planted out, they yield fine heads in September and October. But if sown late, or the summer is unusually cold, they will not bloom at all the first year. The seeds retain their vitality for many years. In spring, after the plantation is made up, manure and fork the ground between the plants, and, if need be, intercrop with early Spinach or Lettuces. Towards the end of June the plants will have grown so much that they will meet each other and destroy any crop that may then be between them. Summer care consists in keeping them clean and cutting off every head just as soon as it is large enough to use. This has a tendency to prolong the crop. Sometimes the young shoots of Artichokes are bleached, being treated like Cardoons, and used as a substitute for these, but this dish meets with little favor. Large Green is the variety advertised by most seedsmen. But we get a good many varieties from seed, some good and some poor, so that the best must be selected and perpetuated by division. Those that have the thickest and fleshiest scales are the most desirable.

Rhododendron Countess of Haddington.—A good specimen of this fine plant was recently exhibited at the Massachusetts Horticultural Society by Mrs. F. B. Hayes, of Lexington. It is one of the first of the long series of hybrid Rhododendrons which

have been raised by crossing Asiatic species. Its parents were *R. ciliatum* and *R. Dalhousiæ*. The latter is a straggling shrub six or eight feet high, growing upon trunks of trees, with immense white tubular flowers, in open terminal umbellate heads, which, with the straggling habit, this hybrid inherits. The flowers, of which there are rarely more than two or three in each umbel, are two and a half to three and a half inches long, white, tinged with pink, and in shape not unlike those of *Lilium longiflorum*. This Rhododendron, which to persons who only know our native species hardly seems to be a Rhododendron at all, is an excellent cool green-house plant, which can be had in bloom at any time from March to May. It requires the same treatment as the Indian Azaleas, and its blooming period may be retarded in the same manner. The not very good habit and its slow growth are the only drawbacks to this plant, which should be more often seen than it is in American collections. *S.*

The Wild Fig Tree of Florida.

Plant Notes.

The Wild Fig Tree of Florida.

OUR illustration on this page represents, it is safe to say, one of the most remarkable individual trees which can be found within the limits of the United States. It is a specimen of the wild Florida Fig (*Ficus aurea*), which grows in what is locally known as the "hunting ground," a rich, wooded hummock on the shores of Bay Biscayne, about ten miles west of the mouth of the Miami River, in the extreme southern part of Florida. This tree covers nearly a quarter of an acre of ground with its numerous distinct trunks and wide spreading top, and is an object of much interest to all visitiors to this remote corner of the Florida peninsula.

The Florida Wild Fig, like many other species of this genus, is parasitic. Its seed germinates upon the trunks or branches of other trees, where they are dropped by birds. The roots of the Fig, as it grows, gradually extend down and around the trunk of its host, which sooner or later inevitably perishes in their vigorous embrace, and in time reach the earth, grow together, and form the first and principal trunk of the tree. Aërial roots are constantly developed from the branches, and after becoming fixed in the soil, grow into trunks, which often exceed the original stem in size; and this tree, like many of its kindred, the Banyans of the East, thus gradually extends itself over a large area.

Two species of Fig are found growing spontaneously in the semi-tropical portions of Florida. Of these, *Ficus aurea* is the most common and by far the handsomest. It grows on many of the keys from Key West to Cape Florida, and extends up the east coast to the Indian River region, but it has not been detected on any part of the west coast. There are specimens of this species in the Kew Herbarium, from the island of New Providence (Brace 356), and it is probably to be found on the other Bahama Islands.

The Florida Fig is a large evergreen, or sub-evergreen tree, with a trunk sometimes three to four feet in diameter, with

light gray, very smooth bark, and coriaceous yellow-green leaves, three to four inches long and two inches broad. They are pointed at both ends, and are borne on stout petioles, which, as well as the prominent mid-ribs, are somewhat lighter colored than the rest of the leaf. The fruit is small and nearly round, about one-third of an inch in diameter, and sessile in the axils of the leaves. It is yellow as it approaches maturity, a character which probably led Nuttall to apply the name *aurea* to this species, but when perfectly ripe turns bright red.

The noble tree which stands in front of the United States barracks at Key West, and which all visitors to the island are taken to see, belongs to this species.

Ficus aurea was quite generally introduced into cultivation a few years ago, through the agency of the Arnold Arboretum. It is easily raised from seed, and at the north makes a hardy conservatory or house plant, although inferior for this purpose to the common Rubber-plant (*Ficus elastica*).

Our picture is from a photograph made by Mr. James M. Codman, to whom the readers of this journal are indebted for many of its most interesting illustrations. *C. S. S.*

Notes from the Arnold Arboretum.

THE earliest shrub in flower in the collection, with the exception of a few Willows and Alders, is *Erica carnea*. It was in full bloom by the 14th of April; and the season here this year is ten or twelve days later than the average. This is a dwarf species which inhabits the lower hills of the European mountain ranges from Switzerland to the Balkans. It rarely exceeds six inches in height, although in some localities it grows erect and much taller (*E. Mediterranea*). The flowers are bright, clear red, a quarter of an inch long, drooping, axillary and arranged in leafy racemes, terminal or just below the ends of the branches. This is one of the hardiest and most satisfactory of all the Heaths in this climate; and is indispensable in a rockery. It flourishes in a compost of peat mixed with a liberal amount of sand; and blooms not only earlier in the spring than other species, but again very late in the autumn. In a milder climate it continues in flower nearly all winter. A slight protection of pine branches thrown over it in winter protects it here from the scorching sun of February and March. A variety with white flowers is generally known in gardens as *E. herbacea*.

A few days later *Daphne Mezereum* was in bloom. This is a widely distributed shrub, common over nearly the whole of Europe and Russian Asia and extending to the Arctic regions. For centuries it has been a favorite garden plant in Europe, but is now too rarely seen in this country. It is an erect glabrous shrub, one to three feet high, with rigid, erect branches, each terminated with a tuft of narrow deciduous leaves. The flowers appear before the leaves, in numerous crowded clusters of two or three, along the shoots of the preceding year, and are succeeded by large red, handsome berries. This is a very hardy and perfectly satisfactory little shrub, which thrives in any good garden-soil. There is a variety with white flowers, and another which blooms in the autumn. The bark of the Mezereum has medical properties, and is collected in large quantities in some parts of Germany. It is now principally employed as an ingredient in the compound decoction of Sarsaparilla.

Cornus officinalis is in full bloom at the end of the third week of April. This is a Japanese species which, according to Siebold, reaches a height of 10 to 12 feet, and is greatly valued by the Japanese as an ornamental plant and for the medicinal qualities of its bark. An admirable colored plate (*t.* 50) of this plant is published in Siebold & Zuccarini's "*Flora Japonica*." It very closely resembles the well known Cornelean Cherry (*Cornus mascula*), as Siebold himself points out, and it is probably merely an extreme geographical form of that species. It has the same small yellow precocious flowers produced in simple umbels from the axils of the leaves on the shoots of the previous year, and the same cuspidate-acuminate entire leaves, which, however, in the Japanese plant have tufts of thick rusty hairs in the axils of the primary veins. The fruit, as described by Siebold, seems identical with that of the Cornelean Cherry. *Cornus officinalis* is a very hardy, fast growing shrub, chiefly valuable for its very early showy inflorescence.

Cornus mascula is also in bloom, its leafless branches wreathed in yellow. But this is such a well known plant that nothing need be said about it except that it is not appreciated or planted half often enough in this country, and that the varieties with variegated leaves—great favorites with many nurserymen—do not bear our hot sun well and are not worth planting here. Forms now exist in French collections which vary from the type very considerably in the shape and color of the fruit. The most striking and interesting of these is one with clear, bright yellow drupes.

Andromeda Japonica, an evergreen species, the Japanese representative of our Alleghany *A. floribunda*, is in flower, or rather it would have been in flower several weeks ago had not the cold, as it does every year, destroyed nearly all its beautiful racemes of pure white bell-shaped flowers. This Japanese Andromeda is a perfectly hardy plant, hardier here even than its American congener, but it blooms too early and is not worth cultivating at the north as a flowering plant. At the south it might be expected to open its flowers in February and to become a most useful and attractive garden ornament. *Corema Conradi*, which is now well established in the Arboretum, is also in flower. This is one of the rarest of North American shrubs, being found only in a few isolated stations on the coast of New Jersey, Long Island, New England, and in Newfoundland. It is a diffusely branched, spreading little shrub only a few inches high with scattered or nearly whorled heath-like leaves and minute apetalous flowers in small terminal heads. Its interest is botanical rather than horticultural, although the male plant is handsome when in flower with its tufted purple filaments and brown anthers. This plant is rather impatient of cultivation, but it can be grown in sandy peat in full exposure to the sun and once established it spreads rapidly. Plants, however, when they are taken up on the seashore must be thoroughly rooted in pots in a frame or cool green-house before being planted in the border. It is hopeless to try to transplant it in any other way.

The Leatherwood (*Dirca palustris*) of our far northern woods, will interest the botanist rather than the gardener accustomed only to plants with showy and conspicuous flowers. It is one of the earliest shrubs to bloom and one of the easiest to cultivate. Its small yellow flowers in dense heads appear some time before the leaves. *J.*

The Forest.

The Forests of the Yellowstone National Park.

STANDING upon one of the high peaks in the north-western part of the Yellowstone National Park, the observer looks out upon an almost unbroken, undulating, dark green forest, stretching away to the eastward and southward. This timbered area, comprising the central and southern portions of the Park, is a high, rolling, volcanic plateau, with an average altitude of about 8,000 feet, except in the extreme south, where an altitude of 10,000 feet is reached. On the north-west it is flanked by the Gallatin Range, mainly sedimentary, and along the whole eastern border by the rugged volcanic peaks of the Absaraka or Yellowstone Range, both reaching altitudes of 11,000 feet. The continental divide crosses the Park and is generally broad, ill defined and heavily timbered throughout, with an altitude varying from 8,000 to 10,000 feet.

The mountain slopes over the region, where not too precipitous and rocky, are generally well clothed with timber up to 9,000 feet. Above this the country becomes more open, grassy parks mingled with groves of trees, until the timber line is reached, which may be roughly estimated at 9,600 feet on the peaks and somewhat higher on the elevated plateaus. The altitude of the Park, with its topographic features, make it one of the storm centres of the northern Rocky Mountains. It is one of our greatest natural reservoirs, including within its limits the head waters of the Yellowstone, Gallatin, Madison and Snake Rivers. The Park lies in the Rocky Mountain belt of coniferous forests, geographically termed the Interior Pacific, and which, trending north-westward, unites in Washington Territory with that of the Pacific coast, forming a broad belt which still farther north in British America merges into the north-west extension of the Atlantic forest.

The common and most widespread tree of the Park is the Black Pine (*Pinus Murrayana*). It is the only tree forming extensive forests, to the exclusion of other species. It reaches its greatest development on the drier plateaus,

between 7,000 and 8,000 feet, here forming at least ninety per cent. of the forest. It is not generally over two feet in diameter, with a height of 60 to 100 feet, and is found from the lowest altitudes up to 9,500 feet; over the lower and drier areas with the Douglas Fir (*Pseudotsuga Douglasii*), and in higher and more moist situations—with more or less Spruce and Fir. The young forests of Black Pine are composed of slender, extremely straight trees, growing so close together as to be almost impenetrable, and are known as Lodge Pole Pines, having been so used by the Indians. Probably sixty-five per cent. of the forest area is composed of the Black Pine.

The Rocky Mountain White Pine (*Pinus flexilis*) is a common tree over the dry gravelly ridges, from 7,500 feet upward, especially above 8,000 feet, although occurring frequently at much lower elevations.

Pinus albicaulis, another White Pine, is found associated with *P. flexilis*, but ranges higher, being found scattered or in bunches on rocky exposed ridges and summits at the upper limit of tree growth, but has been observed as low as 7,500 feet. The region of the Park is probably the most eastern and southern habitat of this species. It is abundant on the higher mountains of Park, Gallatin and Madison Counties, Montana, immediately north and north-west of the Park. To an ordinary observer it closely resembles *P. flexilis* in general habit and has here been confounded with it. The whiteness of the bark, which is a characteristic farther north and north-west, is hardly noticeable here, but the brown-purple young cones which fall to pieces at maturity, at once distinguish it from *P. flexilis*, the young cones of which are green and have persistent scales. These two species form about 10 per cent. of the forest area. The Yellow Pine (*Pinus ponderosa*) might be expected on some of the lower, drier areas, as it occurs in the Black Hills on the east, and on the west in Idaho and Montana, but it has not been observed.

The Douglas or Red Fir is found up to 9,000 feet, generally scattered over the drier grass ridges and slopes. It here does not compare in size with the magnificent specimens of the Pacific coast, although some trees observed had a diameter of five feet, but generally were stunted and unsound.

The Balsam (*Abies subalpina*) ranks next to the Black Pine in numbers and distribution. It is found throughout the Park in cool, moist situations, at low elevations on the northern slopes, and especially common on wet subalpine slopes and plateaus about the timber line, forming groves in the Park-like openings. On moist plateaus, above 8,000 feet, and the slopes and bottoms of deep cañons, are forests of this species and of Engelmann's Spruce, these two trees forming at least twenty-five per cent. of the forest area of the Park.

The Engelmann's Spruce is generally associated with the Balsam Fir. It is the finest tree of the Park, although not comparing in size with the specimens found in the extensive forests of this species, which occur further south in the central Rocky Mountain region. Still farther north it becomes rare and of small size. The White Spruce, which occurs in the Black Hills of Dakota and in Northern Montana, reaching its greatest development in the Flathead Region, probably does not occur within the Park. Some of the cones of *Picea Engelmanni* show a transition into those of *P. alba*. This fact is suggestive, occurring, as it does, in a region between that of that greatest development of *P. Engelmanni* on the south and *P. alba* on the north; although in north-west Montana, where both species occur, Professor Sargent has observed the same fact, but they are found "at different elevations, in different soils and never mingle."

The Red Cedar is occasionally seen along the lower, drier valleys. *Juniperus communis*, var. *alpina*, occurs on rocky slopes and more frequently about the hot spring areas. On moist slopes and along streams of the lower grass areas are often found groves of the Aspen (*Populus tremuloides*). Occasionally a Cottonwood (*Populus angustifolia*) will be met with in the same situations.

The bog and stream thickets are composed of some of the following shrubs: *Betula glandulosa, Salix desertorum*, var. *Wolfii; Salix glauca, Alnus incana*, var. virescens.

Of other species may be mentioned: *Salix longifolia, Betula occidentalis, Alnus viridis, Prunus demissa, Pyrus sambucifolia, Amelanchier alnifolia, Ceanothus velutinus, Rhamnus alnifolia, Acer glabrum.*

There are some areas of considerable extent throughout the Park which are not forest covered, and at lower elevations covered with a luxuriant growth of grass and more or less of Sage Brush. These comprise, perhaps, 220 of the 3,350 square miles of the Park. Add to this about 80 square miles for all minor areas, small parks, meadows, and regions above timber line, and 180 for lakes and ponds, we have a total of 480 square miles, or about fourteen per cent. of the area of the Park. We can, therefore, safely say that about eighty-six per cent. of it is forest covered. *Frank Tweedy.*

United States Geological Society.

Correspondence.

"Which is the Better Way?"

To the Editor of Garden and Forest:

Sir.—In a recent contribution to your columns under the above heading the opinion is expressed that in a work of landscape gardening the best results will be secured when no trees are planted but such as it is essential to its design should attain mature character. The large parks of New York and Brooklyn present the strongest possible argument for this position, and no man can realize better than I do the danger of proceeding otherwise than as thus recommended.

Yet it may be questioned whether a passage may not here and there be found in these grounds, in which a moderate amount of thinning of densely planted groups has from time to time been secured, in which more refreshment is offered to town-worn men than could have been otherwise provided. And perhaps a few words of caution to young landscape gardeners not to follow the precept too literally may serve a good purpose.

If a client asks me how the very best results are to be obtained with liberal outlay on a given piece of ground, I may say nothing to him of nurse trees, such as are to be removed as a matter of course when their purpose has been served. I may begin my answer by reminding him that though we commonly speak as if trees of the same name were of identically the same nature, they do, in fact, vary one from another as they grow up, in form, color, habit, character, constitution and in the possession of vital force, quite as much as human beings of the same surname. There is a natural proclivity with some to a quiet, regular life, with others to comparative eccentricity; with some to robust, with others to delicate habits; with some to yield to enemies, with others to fight hard with them; with some to early decay, with others to long and vigorous lives. Hence, aside from the cultural advantages for young trees of close planting, "the very best results" are likely to be attained by planting two, three or four times as many trees of those of a common name, that are to have part in a group, as it is thought will ultimately be desirable to remain in it. In this case thinning is to be made afterwards by selecting from time to time that one of the number to be taken out that appears likely to contribute least to the value of the group (regarding the group, of course, as an element of a designed more comprehensive composition). Growing in this way the single tree that may be left after many years will not be as symmetrical a "specimen" as might have resulted from the planting of one tree only of the name, but the chances are that it will be a much more desirable tree for the place in which it stands. It will be larger, stronger, more truly representative. It will have a shape more like that of a tree that has triumphed in a contest of natural selection, and a shape better expressive of its incorporation with other trees similarly grown in the group in which it was originally designed that the individuality of all its trees should at last be merged.

And the young landscape gardener should not overlook the fact that if there is a liability to the miscarriage of a design in such cases through neglect of thinning, it cannot be reckoned with certainty that a miscarriage will always be avoided by planting no tree of any kind except where a tree of that kind can with advantage stand permanently.

Ten years after a place has been planted on the latter principle no two out of a hundred of its trees may yet have begun to grow into grouping connection one with another. None will, at best, be more than promising "specimens." All will not be that, for, through ice storms, cyclonic gusts, strokes of lightning, borers, climbing boys, runaway wagons, lingering diseases or the development of a cramped or a straggling habit of growth, some will be unpromising. The place will not have upon it a hundredth part of the whole body of foliage which, with a continued flourishing condition of all its trees, is to be eventually expected, for after ten years the bulk of foliage carried by most of our trees increases annually, for many years, at a very rapidly advancing rate. In a single year the leafage of a tree, under favorable circumstances, may double. If there have been disturbing circumstances in the landscape beyond the bounds of the property, such as may be caused by a rural cemetery or a fantastic villa with flaunting flower beds and iron fountains and statuary, they will not yet have been "planted out." Under these circumstances it is not improbable that those living on the place will have become impatient of its public, unfurnished and hobbledehoy character, and to get the better of it will fill in supplementary plantings, which will be quite as unfavorable to the realization of the design of the primary planting as the neglect of proper thinnings of a dense planting would have been.

To appreciate the liability of such a result one should have in mind what great blank spaces must be left between sapling trees if it is intended to give them room for anything like their possible full development. Two continuously flourishing Elms will eventually cross branches if planted a hundred feet apart. I have paced the shadow of one of a group of Oaks at noon-day which was a hundred and forty feet across.

As a liability to the miscarriage of a design in one way or the other can by no means be fully guarded against, the conclusion seems reasonable that a landscape artist no more than any other should be asked to school himself to have only standards in view that he can be sure will be appreciated and sustained by his clients and the successors of his clients. Perhaps the better "moral" is that in planting, as in all other operations of landscape gardening, what is the best way of proceeding is a question of time, place and circumstance. There should be no stereotyped work.

The subject cannot be dismissed without another word of caution.

In contending with the superstition that prevents the due thinning of plantations, I have found that the impression had sometimes been left on the minds of the inexperienced that under no circumstances is it good practice to plant trees so that when full grown their branches are at any point likely to meet and interlock. Every one who goes to Nature for instruction knows how she laughs at such a precept. As an example, consider a very common case in any region of old farms, where trees are seen that have grown from seedlings within a space of perhaps twenty feet on each side of a former fence. In a distance of fifty yards measured along the fence line there will be numbers of large trees, the trunks of which do not stand on an average more than ten feet apart. Their roots and branches spreading outwardly from the central line, these trees have had, on the whole, no serious lack of air, light or food, and their heads have grown into an unbroken body which could have been made more beautiful, if by any course of treatment, most assuredly not either by sparser planting or more trenchant thinning.

As to shrubs, no one can have failed to notice the value in landscape of low bodies of foliage of much denser growth than it is customary to have in view in any pleasure plantations. There will have been seen, for instance, in England, neglected hedges, chiefly of Hawthorn, that, a hundred years or more after planting, have spread into masses several yards in breadth. I have come upon such close about London as well as in remote rural districts, and I have never seen anything in park or garden more beautiful. In our South-western States there are to be seen similar, but broader, and, if possible, yet more admirable bodies of Cherokee Roses, with a sprinkling of other things, that the smallest bird could not make his way through; on our northern Atlantic coast broad patches of Bayberry, with stems considerably more than a hundred to the square yard; on the high Sierras acres of the Golden Chestnut equally dense; on the top of a North Carolina mountain, half a mile square, of Catawba Rhododendron growing so closely that the ground beneath it is as bare as if it had just been plowed, harrowed and rolled. No one seeing it can be disposed to ask if it would not be better worth seeing if it had been planted more scatteringly or been thinned out as often as branches came to interlock or to be bent upward.

There are many situations where trees would shut off a prospect, in which plantations of the character thus indicated would make a much better, overlookable foreground than shrubs standing in small groups and singly upon a body of turf kept by a lawn-mower.

Brookline, 15th April, 1888. *F. L. Olmsted.*

To the Editor of GARDEN AND FOREST:

Sir.—I believe in American trees for American planting, as a rule. But our Apples, Apricots, Peaches, Pears, and most of our Plums, have come from other continents. And there is a nut tree which I have seen growing on the mountain sides and plateaus of the continent of Europe, as well as in Corsica and Sardinia, which furnishes an important article of subsistence to millions of people. I refer to the so-called Spanish Chestnut. The nut is ground into flour and made into bread, and the Hon. S. S. Cox, in his recent "Search for Winter Sunbeams," declares that the mountaineers of Corsica prepare their Chestnuts for the table in twenty different ways. Our native Chestnut flourishes from New England to Georgia, but its best nuts are comparatively little things. Why can we not grow the Spanish Chestnut as well as we have grown French Pears? On Washington Heights, Manhattan Island, I have picked half a peck of these nuts that had dropped from a tree twenty years after the seed was planted, and these nuts were as good as imported ones in every way. Farther North the summers may be too short to ripen the nuts before frost, but from the latitude of New York southward we might hope for a crop as certain as from our own trees. On soils where our native Chestnut flourishes an orchard of Spanish Chestnuts would be in bearing fifteen years from seed, and the crop would be much more valuable than the wheat crop, and would increase in value for many years. In California the so-called English Walnut, the Almond, and the Olive, have been introduced with profit. Would it not be worth while to try this European Chestnut on our own coast?

East Orange, N. J. *G. B. W.*

[The cultivation of the Chestnut is an important and profitable industry in most of the countries of Southern Europe, and for centuries the improvement of the fruit, through careful selection, has been going on. The wild forms of the Old World Chestnut produce fruit no larger than our American Chestnuts, although selection and cultivation has now developed varieties three or four times as large.

This fact suggests the possibility of increasing by selection and cultivation the size of the fruit of the American Chestnut, which greatly excels all European varieties in sweetness and flavor, a possibility which should attract the attention of American horticulturists, who, in the improvement of our Chestnut, have an opportunity to increase the agricultural resources and the food supply of the Atlantic States. The Spanish Chestnut has hardly been sufficiently tested yet in any part of this country to justify its general introduction as an orchard tree. It is not very hardy at the North and often suffers in severe winters; in Virginia and in the more Southern Atlantic States, however, it should succeed as well as in Northern Italy; and this tree should certainly be more generally tested there than it has been heretofore. The Japanese form of the Chestnut promises to become a valuable addition to our ornamental, and, possibly, to our orchard trees. It is hardier than the European varieties, and although the fruit is smaller, it is sweeter and better flavored. The best varieties of the Spanish Chestnut can only be propagated by grafting, as seedlings are apt to revert to the wild form. We shall be glad to learn of the experience of our readers in the Middle and Southern States with this tree.—ED.]

Recent Publications.

The Illustrated Dictionary of Gardening; A Practical and Scientific Encyclopædia of Horticulture for Gardeners and Botanists. Edited by George Nicholson. London; and in New York by Orange Judd & Co., 1887–88.

Three volumes of this work have now appeared, and the fourth and last may be expected in a few weeks. The earliest, and still the most famous, Dictionary of Gardening, is that written by Phillip Miller. It was published in London in 1731,

and ran through eight editions. No book about plants contains quainter expression or sounder instruction and advice. George Don published in London in 1831, "A General System of Gardening and Botany," as a new edition of Miller's Dictionary, but this is a book for botanists rather than for gardeners. Johnson's "Gardener's Dictionary" followed this in England, some years later, and for a long time maintained a standard position in horticultural literature. But the great improvements that have been made in horticultural methods, and the vast numbers of new plants which gardeners are called upon to cultivate in these days, make a new general treatise upon gardening and garden plants in the English language a necessity. The work which is now before us fully supplies the need, and surpasses all its predecessors in completeness, convenience of arrangement, and in the number of its illustrations.

The arrangement is alphabetical, and it contains the Latin names of all the genera of plants found in English gardens, with a short generic description, and under each genus, in smaller type, all its species in cultivation, arranged alphabetically, each, also, with a short description, an asterisk marking those species which are especially good or distinct. English names, of which a great number are given, and Latin synonyms, are referred to the Latin name of the plants to which they belong. Much space is given to florists' flowers and horticultural varieties, some important genera, like the Rose or the Chrysanthemum, occupying many pages, with detailed illustrated descriptions of all the best varieties. Insects injurious to garden plants are figured and described; and very carefully illustrated articles are devoted to all horticultural operations, like grafting, budding and pruning. An article upon the Cucumber contains descriptions, not only of all the best varieties, but descriptions and plans of the most approved glass-houses in which to grow them. A dozen pages are devoted to the Pear, and its best varieties, and the insects which are injurious to it, and other English fruits and vegetables, are treated in the same exhaustive manner. Most useful is the information found in this book relating to the derivation of the generic names of plants—information rarely given in works on botany, and not always easy to obtain.

Any plant, no doubt, can be cultivated successfully, if study and patience enough is given to its care, but some plants are so impatient of confinement, and some are so difficult to manage, that they have little value to the ordinary gardener. Amateurs want to know the defects and drawbacks in a plant in cultivation as well as its good qualities. They always hear enough about the latter before they buy, but very little about the former. And it is in books of this character that such information would naturally be looked for; but while it contains excellent suggestions for the cultivation of an immense number of plants, little or nothing is said in these volumes about the drawbacks to any particular species or variety, an omission which those amateurs who are at the mercy of glowing nursery-catalogue descriptions, will probably often have occasion to regret.

Mr. Nicholson has been assisted by Mr. J. Garrett, who has prepared those portions of the work relating to fruit and vegetable culture, florists' flowers and general gardening work; by his associate at Kew, Mr. W. Watson, and by Professor Trail, who has written the articles on fungi, insects, and the diseases of plants. He and his associates deserve the thanks and should receive the congratulations of the horticultural world. They have produced a work which is indispensable to all persons whose studies, business or pleasure bring them in contact with garden plants.

Notes on the Bald Cypress (*Taxodium distichum*), by N. S. Shaler. Memoirs of the Museum of Comparative Zoölogy. Vol. XVI., No. 1.

The functions performed by the peculiar woody growths or "knees" which spring from the roots of our southern Cypress have never been very clearly understood, but Professor Shaler has now collected a series of facts which seem to substantiate his theory that they are in some way connected with the process of aëration of the sap. The facts are these: The knees are not developed when the trees grow on high ground. (This is still more apparent in Mexico, where the same species, probably, or a second and very closely allied species, grows only on dry ground at a considerable distance above the water-level of the streams.) They are always developed when the roots are permanently covered with water. The "knees" rise above the permanent water-level and vary in height with that level. Finally the trees die, when from any accidental cause the water rises above the tops of the "knees." These facts certainly most "incontestably show that there is some necessary connection between them and the functions of the roots when the latter are permanently submerged."

There has always been some doubt how the seed of the *Taxodium*, falling in deep water, could germinate, and yet young trees are often found in the Cypress swamps, which never become dry, growing in several feet of water. Professor Shaler is inclined to believe that such trees are not seedlings, but that they have sprung from branches, blown down from neighboring trees, which have taken root.

Retail Flower Markets.

NEW YORK, *May 5th.*

Business throughout the city is quiet, funeral designs and steamer baskets being all that keep it alive. The introduction of fruit into floral designs for steamer gifts interferes with the florists' revenue. Flowers have improved in quality during the week, those from bulbous plants especially being much finer as their quantity has declined. The novelty in first-class shops is Moss Roses. They cost 50 cts. a spray of one half-opened bud and one green bud. Catherine Mermet Roses are prime, and cost $2 a dozen, as do the Bride, La France and Madame Cusin. General Jacqueminots are superb in color, and of good texture; they bring from $2 to $4 a dozen. There are but few Papa Gontiers arriving; these cost the same as Bon Silenes—$1 a dozen. Perles des Jardins and Niphetos are $1.50 a dozen. The latter are of such size and beauty that they are almost as much sought as the Bride. Puritan Roses are finer than they have been at all this season; they sell for 50 cts. each or $5 a dozen. American Beauties bring from $5 to $8 a dozen. Baroness Rothschild and Mabel Morrisons run small, but are exquisite in form and color; selected blooms may be bought for $8 a dozen. Paul Neyrons do not arrive in as good form as last week, and Ulrich Brünner shows signs of holding its petals loosely. The average price for all Hybrids may be set down as $5 a dozen for second choice and $8 for selected stock. Lilac is choice at $1.50 a bunch; Mignonette is 50 cts. a bunch of twenty-five sprays. Marguerites are 20 cts., Carnations 35 cts., and Forget-me-nots are 25 cts. a dozen; Heliotrope is 50 cts. a bunch, Callas 20 cts. each, Gardenias 25 cts. each. Trailing Arbutus of delightful color and fragrance appears from Long Island and is 50 cts. a bunch. Violets grow poorer and scarcer; they are from 75 cts. to $1.25 a bunch. Meadow Cowslips (*Caltha palustris*) from New Jersey marshes are sold in quantities on the chief thoroughfares for 5 cts. a bunch. Daffodils, Lily-of-the-Valley and Tulips cost from 75 cts. to $1 a dozen. Smilax is somewhat more plentiful as the demand relaxes; it remains as last quoted, as does *Asparagus tenuissimus*.

PHILADELPHIA, *May 5th.*

Owing to the extremely warm weather, flowers were abundant everywhere early in the week. The only scarcity was of white Carnations and Lilac. It is between seasons for the last. Frequently it is in bloom here out-of-doors at this date. Last year a supply was obtained from Washington between the times when the stock for forcing was exhausted and that out-of-doors had not commenced to bloom. The warm weather also had a tendency to check the demand for flowers, but the returning coolness has braced up the market considerably. May usually brings a break in prices here, but this year very few flowers are blooming in the open air. Next week we may with confidence expect to report lower prices for nearly every class of flowers. Some of the dwarf Cannas are destined to be used for cut flower purposes hereafter. They are easily forced, and will add a new feature to floral decorations. Some of the spotted varieties are extremely showy, and flowering, as they do, when only two and a half to three feet high, they will not occupy much space in comparison with the older varieties. Smilax is becoming more plentiful and better in quality.

BOSTON, *May 5th.*

Mayflowers everywhere. The always welcome Arbutus is now in the height of its season, and its popularity. The flower stores give it the cold shoulder, but there is no scarcity on the street corners and it forms for the time being the universal corsage bouquet, while the violet quietly drops to the rear and will soon disappear for the season. There are still some violets to be had, but they are small and pinched looking. A few of the true English Violet are offered. These are only seen in the spring. The stems are too short, but the rich dark blue color and unequaled fragrance make them popular in spite of the short stems. These sell for 50 cts. a small bunch. The flower shops are filled now with grand specimens of *Hydrangea Otaksa*. Plants three feet high and three feet across sell from $8.00 to $12.00. With a little care their beauty will last from one to two months in an ordinary dwelling-house. Neat plants of moderate size bearing several heads of flowers, cost from $3.00 to $5.00 each. But few first-class Roses are seen, and they bring winter prices. The best Hybrids, such as Baroness Rothschild, Puritan and Mabel Morrison, are worth from $6.00 to $8.00 per dozen blooms, and American Beauty, when first-class, sells with them. Catherine Mermet, Marshall Niel and La France are worth from $2.50 to $4.00, according to quality. Lily-of-the-Valley is in better demand and the quality offered is uniformly good. Price, $1.00 per dozen sprays. There are still many forced Tulips and Narcissus in the market, but a few more warm days will bring the outdoor crop in. Till then the price of these is 75 cts. to $1.00 per dozen. Harris's Lilies on long stems are abundant and are sold as low as $1.50 per dozen. Mignonette has become a standard flower. Sprays of the large varieties sell readily for $1.00 per dozen. Among the novelties offered are some fine blooms of double Ranunculus.